

REMARKS

Claims 2-17 and 19-49 are pending. Claims 19-21 and 47-49 have been amended to overcome the 35 USC 101 rejection, but not to overcome the prior art. No new matter has been presented.

Claims 2-11, 13-17, 19-22, 28-39 and 41-49 are rejected under 35 USC 103(a) as being unpatentable over Sheppard, U.S. patent No. 6,026,397, in view of Mitra, U.S. Patent No. 6,421,467. This rejection is respectfully traversed.

Claim 19 recites “modifying said cluster structure by a user according to user knowledge and preferences.” According to the claimed invention, a user can indicate how he/she wants the cluster structure to be customized, given the same set of data parameters, according to his/her knowledge and preferences. The Examiner asserts that Sheppard teaches this feature at col. 17, line 60 to col. 18, line 4. Applicant respectfully disagrees.

Sheppard, at col. 17, line 60 to col. 18, line 4, teaches that neural clustering function 36 allows for segmenting the data set in terms of similarity to a set of user defined criteria. Sheppard teaches that, for example, in a customer marketing application, the data set may include information on customer socio-demographics, such as age, income, occupation, and lifestyle interests. Sheppard teaches that the neural clustering function may be used to select a subset of these parameters and cluster on them to determine whether they fall into natural groupings that allow for more selective, personalized marketing. Applicant submits that this is not the same as what is being claimed in claim 19. Sheppard does not teach the cluster structure is modified according to user knowledge and preferences. Rather, Sheppard is merely disclosing that the neural clustering function generates new clusters based on a subset of the data attributes/parameters, selected by a user. This is a trivial form of so called user-defined criteria. Any clustering algorithm would generate a set of new clusters given a modified set of data patterns (with the selected subset of the parameters). Sheppard’s system is merely a pure clustering system in which a user has no control over the new clusters to be generated, and thus fails to teach or suggest the features of claim 19.

Claim 47 is allowable for the same reasons claim 19 is allowable.

Claims 20 and 48 recite “indicating, by a user, a preference for a lower baseline vigilance parameter by selecting at least one unit of information from each of at least two clusters wherein the selected units of information are deemed by the user to be similar to each other.” The Examiner asserts that this feature is taught by Mitra at col. 7, lines 10-40. Applicant respectfully disagrees.

Mitra discloses a clustering system using a vigilance parameter for measuring the distance between an input vector and a cluster center. Mitra’s clustering system is a standard ART clustering system with vigilance as a standard feature, and is well known within the art. Mitra, however, fails to teach or suggest the above-quoted feature of claim 20.

A standard ART clustering system makes use of a vigilance parameter to control the coarseness of clusters to be created given a set of input patterns. The value of the vigilance parameter however has to be specified by a user explicitly. In the claimed invention, a user does not have to specify the vigilance parameter values explicitly. Instead, user preferences are used to adjust the vigilance parameter values in an intuitive way. Specifically, a user indicates a preference for a lower vigilance parameter value by selecting at least one unit of information from each of at least two clusters wherein the selected units of information are deemed by the user to be similar to each other.

Claims 21 and 49 recite “indicating, by a user, a preference for a higher baseline vigilance parameter by selecting at least two units of information in a cluster, wherein said units of information are deemed by the user to be dissimilar to each other.” Mitra likewise fails to teach or suggest this feature. Rather, Mitra teaches a standard ART clustering system in which a clustering system uses a vigilance parameter for measuring the distance between an input vector and a cluster center. Similarly, the claimed invention allows a user to indicate a preference for a higher vigilance parameter value by selecting at least one unit of information from each of at least two clusters

wherein the selected units of information are deemed by the user to be similar to each other. Thus, the claimed invention can be distinguished from the standard ART system disclosed by the prior art.

Claims 3 and 29 recite “wherein said modifying comprises creating at least one new cluster defined by the user.” The Examiner asserts that Sheppard teaches this feature at col. 17, lines 60-67. However, Sheppard merely discloses that the neural clustering function generates new clusters based on a subset of the data attributes/parameters, selected by a user. The clustering process will still be automatic. The user has no facility to specify a new cluster that he/she wants to be in the cluster structure. In contrast, the claimed invention allows a user to indicate he/she wants a specific cluster to be generated in the modified cluster structure, according to his/her knowledge and preferences.

Claims 4, 8, 30 and 35 recite “wherein said modifying further comprises labeling each information cluster by the user using a user-defined symbol.” The Examiner asserts that this feature is taught by Sheppard at col. 6, lines 59-67. Applicant respectfully disagrees. Sheppard merely discloses a graphical interface in the form of a parameter graph through which a user can select the parameters to be used for clustering. It does not disclose any mechanism for a user to label a cluster with a user-defined symbol.

Claims 5, 9, 31 and 36 recite “wherein said modifying comprises merging of at least two clusters chosen by the user.” The Examiner asserts that Sheppard discloses this feature. However, Sheppard merely discloses a graphical interface where a user can manipulate the data patterns, including specifically merging data as part of the data management functions. Sheppard does not disclose how a system may modify its clustering output by incorporating a user preference that two clusters should be merged together.

Claims 6, 10, 32 and 37 recite “wherein said modifying comprises splitting at least one cluster chosen by the user.” The Examiner asserts that Sheppard also teaches this feature. Again, applicant disagrees. Sheppard (at col. 8, lines 1-13) discloses a segmentation function for splitting a data set into smaller segments for analysis. This is completely unrelated to how a system may

modify its clustering output by incorporating a user preference that a cluster should be split into two or more smaller clusters.

Claims 7, 11, 33 and 38 recite “wherein said modifying further comprises storing said cluster structure in a knowledge base.” Sheppard likewise fails to teach or suggest this feature. Sheppard refers to historical records stored in a database, which is clearly different from modifying a cluster structure in a knowledge base.

Claims 13 and 42 recite “wherein said user-configurable information system comprises an adaptive resonance associative map.” The Examiner again relies on Sheppard as teaching this feature. However, Sheppard merely discloses a clustering setup interface in which a user specifies the fields to be clustered and the number of clusters, etc. Sheppard discloses nothing relating to an adaptive resonance associative map.

Claims 14 and 41 recite “wherein said user-configurable information clustering system incorporates user knowledge and preferences for information clustering.” Sheppard fails to teach or suggest this feature as well. Rather, Sheppard discloses that the neural clustering function may generate new clusters based on a subset of the data attributes/parameters, selected by a user. As mentioned above, this is a trivial form of so called user-defined criteria. Every clustering algorithm will generate a set of new clusters given a modified set of data patterns (with the selected subset of the parameters). In this case, the user still has no control on what types of clusters are going to be generated. In contrast, the claimed invention allows a user to indicate how he/she wants different cluster structures to be generated, given the *same* set of the data patterns, according to his/her knowledge and preferences.

Claims 15, 16, and 44 are allowable at least due to their respective dependencies.

Claims 17 and 45 recite “wherein a user-preferred information groupings is represented by a preference vector.” Sheppard relates to representation of data patterns using unit normalized vectors. Sheppard does not disclose or suggest a user preference vector.

Claims 18 and 46 are allowable at least due to their respective dependencies.

Regarding claims 34 and 39, these claims are allowable at least due to their respective dependencies.

Claim 22 recites "further comprising retrieving said cluster structure to initialize said user-configurable information clustering system prior to clustering new information." In contrast, Sheppard discloses that data parameters may be emphasized and deemphasized based on some prior knowledge. Sheppard (at col. 15 lines 30-50) also discloses a summary of the cluster information. Sheppard does not teach how a stored cluster structure may be used as a template for clustering new information.

Claims 12, 40 and 43 are allowable at least due to their respective dependencies.

In light of the foregoing, applicant requests that this rejection be withdrawn.

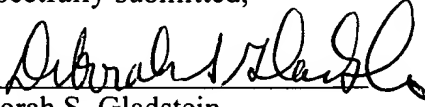
In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to withdraw the outstanding rejection of the claims and to pass this application to issue. If it is determined that a telephone conference would expedite the prosecution of this application, the Examiner is invited to telephone the undersigned at the number given below.

In the event the U.S. Patent and Trademark office determines that an extension and/or other relief is required, applicant petitions for any required relief including extensions of time and authorizes the Commissioner to charge the cost of such petitions and/or other fees due in connection

with the filing of this document to Deposit Account No. 03-1952 referencing docket no.
455392001200.

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